

RELEASE RELAY

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INTRODUCTION

The Type OS2 Release Relay consists of a Mechanism Box (BM) and one or two Safety Manometric Boxes (BMS). Its function is to provoke the activation of a slam shut valve which may be stand alone (Type OSE), integrated in a regulator (Types MP, MPS, DRPNPIL, EZH, DRPN and EZR) or integrated in a Type K1000/K3000, in the case of under or over pressure in the controlled gas network. It may be mounted on systems of DN 25 to DN 150 and up to PN 100.

It is tight shut and submersible. It may be connected to an explosion-proof contact (intrinsically safe).

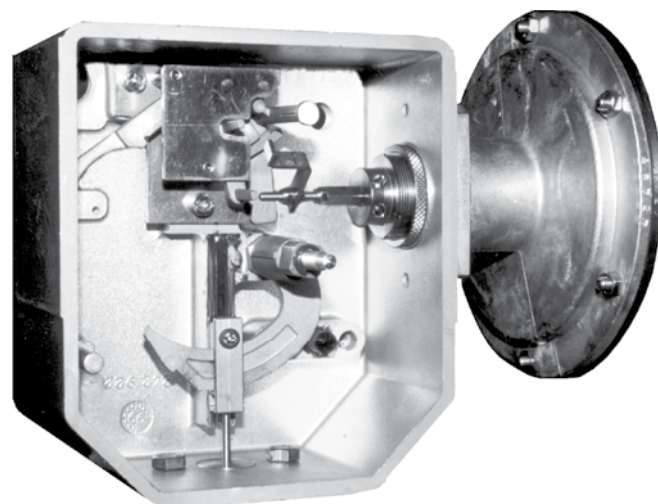


Figure 1. Type OS2

MECHANISM BOX (BM)

The mechanism box is designed to close a slam shut valve. The operation is ensured in two successive stages: a detection stage and a power stage. The separation between the detection stage and the power stage provides maximum precision, indifferent of working pressure, slam shut valve diameter and gas flow. After activation of the slam shut valve due to over or under pressure, the mechanism box must be reset manually. The complete system is available, on request only, sealed with lead and wire.

SAFETY MANOMETRIC BOX (BMS)

The pressure data is transformed into a displacement by a safety manometric box (Type BMS 1) mounted on the mechanism box (BM). This displacement is used to activate the detection stage of the mechanism box in the case of overpressure, over or underpressure, or underpressure condition.

In certain configurations, a second box may be used (Type BMS 2).

Type OS2

LABELLING

BMS

Taille

Size

See Table 1

PSD BMS

See Table 1

bar

N°

Série

Serial

AG maxi

See Table 1

FRANCEL

Ressort/Spring Ø

mm

Δ1

bar

Figure 2. Max. Pressure Triggering

BMS

Taille

Size

See Table 1

PSD BMS

See Table 1

bar

N°

Série

Serial

AG maxi

See Table 1

FRANCEL

Ressort/Spring Ø

mm

Wdsu

Δ1

bar

Figure 3. Min. Pressure Triggering

BMS

Taille

Size

See Table 1

PSD BMS

See Table 1

bar

N°

Série

Serial

AG maxi

See Table 1

FRANCEL

Ressort/Spring Ø

mm

Wdsu

Δ1

Δ2

bar

Figure 4. Max. and Min. Pressure Triggering

See Tables 14, 15 and 16 for other values.

Table 1. Type OS2 Pressures

SIZE	162	071	027	017	236	315
PSD	10 bar	20 bar	100 bar	100 bar	35 bar	72 bar
AG max.	2.5	2.5	5	5	2.5	2.5

TYPES OF INSTALLATION

Mounting on horizontal pipeline only:

Top Mounted (stand-alone valve)

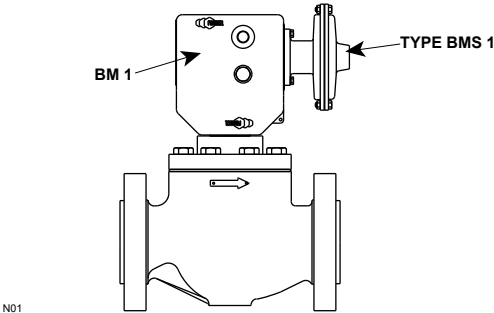


Figure 5. BM 1: Mechanism Box with One Safety Manometric Box (Type BMS 1)

Bottom Mounted (intergrated valve and regulator)

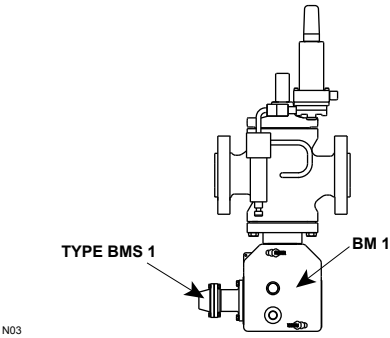


Figure 6. BM 1: Mechanism Box with One Safety Manometric Box (Type BMS 1)

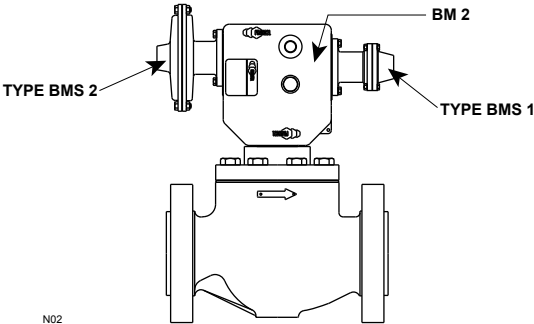


Figure 7. BM 2: Mechanism Box with Two Safety Manometric Boxes (Types BMS 1 and BMS 2)

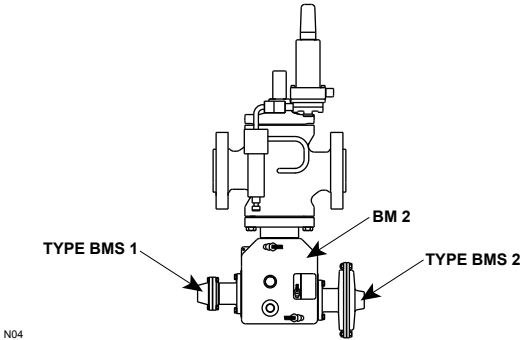
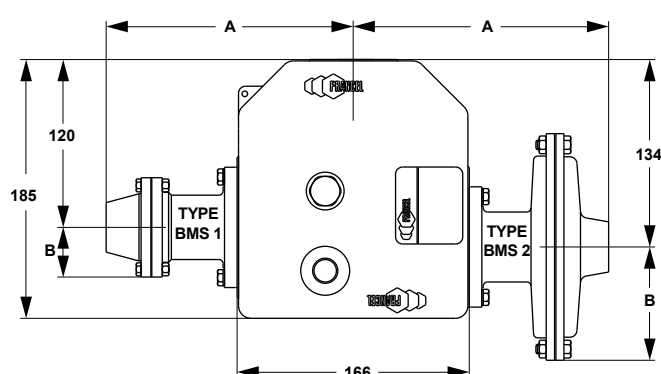


Figure 8. BM 2: Mechanism Box with Two Safety Manometric Boxes (Types BMS 1 and BMS 2)

CHARACTERISTICS

Accuracy	AG 2.5	Diaphragm or bellows
	AG 5	Piston
Memorization	No memorization	----
Resistance to vertical shocks	4 J	(20 shocks)
Resistance to pendular shocks	9.81 J	(20 shocks)
Sealing	IP 67	Temporary immersion
Maximum operating pressure (PSD)	100 bar	----
Operating temperature	-30°C to +71°C	----
Maximum valve travel	50 mm	----

DIMENSIONS AND WEIGHTS



N05

Figure 9. Dimensions

DESCRIPTION AND SPARE PARTS (BM)

Table 3. Mechanism Box Assembly

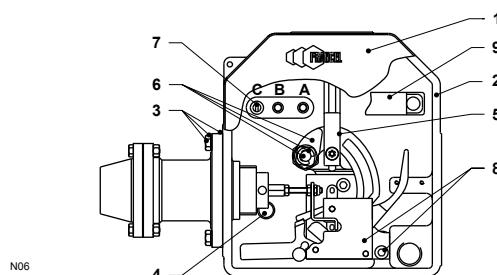
Item	Description	BM1	BM2
	Mechanism box	181 067	181 068
1	Cap including indicator, O-ring and screw (new version 06/2007; interchangeable)	181 328	
	New cap O-ring	145 430	
2	Mechanism box casing	142 930*	144 071
3	Box gasket	142 930*	
	BMS gasket	145 431A*	
	BMS screw	402 018*	
	BMS sealing screw O-rings	461 150*	
4	Non-connectable brace vent	27A5516X012	
	Vent link for 8 x 10 tube	406 526	
5	Yoke	181 042	
6	Fixed bolt axe (do not dismount)	142 920	
	Bolt	181 043	
	Truarc O-ring	406 128	
7	Travel stop	140 324	
	Damper	127 692	
8	Mechanism	181 041	
	Mechanism screw	402 512	
9	Resetting tool	242 915	

* Sold as a set ref. n° 197 351.
Items in bold are spare parts.

Table 2. Dimensions and Weights

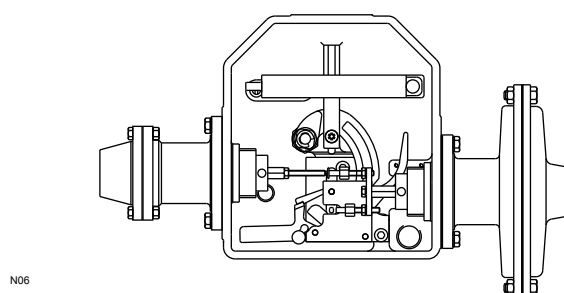
		Type	Dimensions, mm		Weight, kg
			A	B	
BM	BM1	For 1 BMS	----		2.5
	BM2	For 2 BMS	----		2.5
BMS	162	Diaphragm	181	83	2.6
	71	Diaphragm	175	36	1.2
	27 or 17	Piston	204	36	2.3
	236	Bellows	202	36	2.4
	315	Bellows	223	36	2.8

For a Type OS2 with one BMS add the weight of the BMS to that of the BM 1.
For a Type OS2 with two BMS add the weight of the two BMS to that of the BM 2.



N06

Figure 10. Mechanism Box for One BMS



N06

Figure 11. Mechanism Box for Two BMSs

CONNECTIONS

Table 4. Connection Types

Non connectable	Plastic vent with screen	1/4" NPT
Connectable	Link 8/10 tube	
Contact	Box exit	1/2" NPT

Type OS2

DESCRIPTION AND SPARE PARTS (BM)

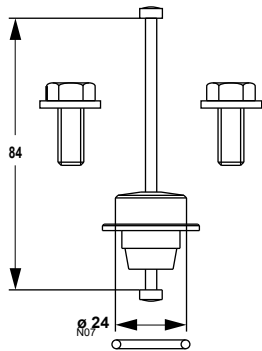


Figure 12. Standard Packing Gland

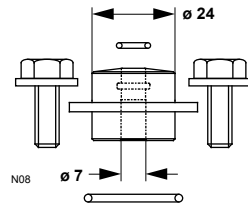


Figure 13. Type VSE Packing Gland

Table 5. Packing Gland Assembly

Description	Packing gland		
	Valve		
	Type OSB	Type VSE	Standard
Assembly	181 089	181 090	181 104
Packing gland and stem	181 040	----	181 040
Packing gland	----	144 126	----
O-ring	400 514	400 505	400 514
O-ring	----	400 221	----
Fastening screw H M7	402 028	----	402 028
Fastening screw H M8	----	402 036	402 036
Flat washer (7)	405 005	----	405 005
Flat washer (8)	----	405 006	405 006

Items in bold are spare parts.

OPERATION (BM)

The detection stage consists of two parts:

- The releasing stem (key 1) and
- The 1st stage trigger (key 2).

Through the intermediate of the safety manometric box (BMS), the pressure provokes a pin movement (D1 or D2), which provokes the rotation of the releasing stem (key 1) and frees the 1st stage trigger (key 2).

The power stage consists of two parts:

- The 2nd stage trigger (key 3) and
- The cam (key 4).

The 2nd stage trigger (key 3), activated by the 1st stage trigger (key 2), frees the cam (key 4), which provokes the valve to close. After release, the resetting is ensured in two stages: (detection stage, then power stage) see «commissioning».

Position indicator

The position of the detection stage can be seen through the position indicator glass.

Memorization

The releasing stem will only start moving when pressure approaches the pressure setpoint. In all other cases, it remains fixed. Furthermore the assembly has a very high resistance to shocks. If pressure approaches the setpoint, the releasing stem turns, but with the slightest shock or vibration it will go back to its initial position and pressure returns to normal. The mechanism is said to be non memorizing.

* The 8/10 tube should be angle-shaped on the top to avoid water from entering.

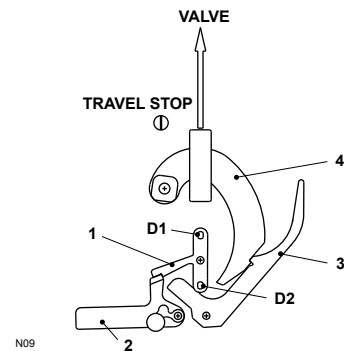


Figure 14. Mechanism Details

Resistance to shocks

This assembly has a remarkable resistance to shocks (20 vertical shocks of 4 J and 20 pendular shocks of 9.81 J), with pressure close to setpoint (for example: 186 mbar for a setpoint of 200 mbar).

CONNECTIONS (BM)

- Fixation BM / Connector:
H M7 or H M8 screws
16 N·m torque
- Sealed BM / Connector:
Flat O-ring (water resistant)
Packing gland (gas resistant)
- Mechanism contact / Slam shut valve:
Control rod
- BM connector / atmosphere:
Integrated vent nipple with screen (supplied) or
compression fitting (supplied) for 8/10 tube
(not supplied)*
- Electrical connection:
See page 6

MECHANISM BOX (BM) MATERIAL

Table 6. Mechanism Box (BM) Material

Box	Body	Aluminum	Chromatation
	Cover	Aluminium	Chromatation
	Position indicator	Polycarbonate	----
	Self-jamming ring	Steel	Phosphatation
	Cover nut	Stainless steel	----
	Circlips	Steel	Phosphatation
Mechanism	All parts	Stainless HR	----
	Brackets	Brass	
	Bolt	Brass	
	Elastic O-ring	Steel	Phosphatation
	Torsion spring	Stainless steel	----
	Traction spring	Bronze	
Yoke	Self-jamming ring	Steel	Phosphatation
O-rings	Flat	EPDM	----
	Cover	Neoprene (CR)	
	Truarc ring	Nitrile (NBR)	

COMMISSIONING (BM)

Commissioning differs depending on whether the assembly has an internal or external bypass and whether overpressure releasing is required or not. See corresponding technical manuals for further details.

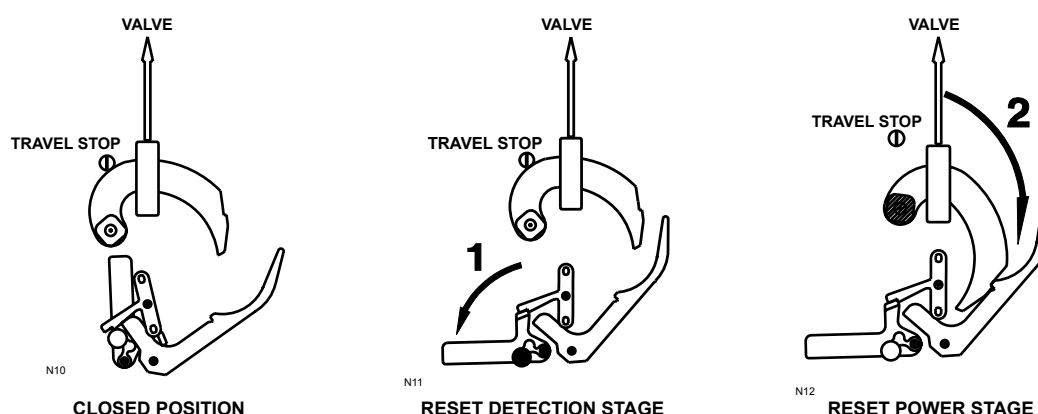


Figure 15. Release Activation Stages

Note

The position of the travel stop (Figure 10, key 7) depends on the type of assembly and its size. Position A, B or C depending on max. travel of slam shut valve: A = 15 mm travel, B = 35 mm travel, C = 50 mm travel.

• Mechanism box (BM) intervention

To access the box the cover must be removed. When unscrewing the nut a circlips is used to remove the O-ring. The cover is held on by one screw which can be unscrewed manually or using a socket screw key (recommended torque for optimal shutoff: 6 N•m).

• Resetting

To reset the slam shut (after the fault has been settled), the 1st mechanism stage must be reset by manually turning the 1st stage trigger. If the slam shut has an internal bypass the cam must be slightly turned using a resetting key to bypass. If the slam shut has an external bypass, a bypass valve will be used. In both cases:

- Wait for the pressure to be equalized before resetting the 2nd mechanism stage.
- When resetting the 2nd mechanism stage (opening of the valve) a reset key is used (delete).

Table 7. Packing Gland Material

Body	Bronze	----
Control rod	Stainless steel	Chromium plating
Truarc ring	Nitrile (NBR)	----



CAUTION

Never use an extension pipe with the reset key when resetting the 2nd stage (max. normal torque 16 N•m, never go over 32 N•m).



WARNING

AUTHORIZED PERSONNEL ONLY
Risk of injury

After rearming, remove the reset key from the stem. Do not put fingers in or near the reset mechanism area.

MAINTENANCE (BM)

• Tools:

- Spanner 11 (screw 7) and 13 (or 14) (screw 8)
- Screwdriver

• Control

- 1st and 2nd stage mechanism releasing
- Packing gland is tight shut
- Yoke greasing

• Disassembly

- Check that assembly is not under pressure
- Manual release of slam shut (Figure 14)
- Manually press on the releasing stem pin D1 or D2 (Figure 14, key 1) parallel to the BMS axe
- Unscrew the travel stop (screwdriver)
- Unscrew the BM fastening screws (flat spanner 11 (screw 7) and 13 (or 14) (screw 8)
- Disassemble the mechanism box (BM) from the connector by unlocking the yoke

• Assembly

- Proceed in reverse order to disassembly

OPTIONS (BM)

• Remote alert (on BM1 or BM2)

Detects 2nd stage releasing (power)

• Remote control

Atmospheric solenoid valve (releasing by min. pressure) for max. releasing pressure of 30 bar. Safety manometric box (BMS) activated with a pneumatic or electro-pneumatic impulse.

• Manual control on BM2 with 1 Type BMS 1 only

Push button (connected at the same place as a Type BMS 2).

Type OS2

Contact

Table 8. Mechanism Box (BM) Connections

	AC	DC
Max. intensity	7.0 A	0.8 A
Max. tension	400 V	250 V
Protection	EEx-d IIC T6	
Tightness	IP 66	
Temperature	-29°C +71°C	
Fastening	2 M3 screws	
Cable	3 wires (black, brown, blue) H05VVF (3 x 0.75 mm²) D 6.5 mm	

Table 9. Mechanism Box (BM) Versions

Version	Installation	Sealing	Connection	Mechanical Connection	Electrical connections			
					Common	NF	NO	Connection
C0	----	IP 68	Without	1/2 NPT cap				
C1	Explosion proof	IP 68	Explosion proof	3 m wire	Black	Blue	Brown	Wires
C2		IP 68		Explosion proof connector box/PE explosion proof	3	4	5	Screwed wiring
C3	Intrinsical safe	IP 68		Intrinsical safe tight-shut connector	A	B	C	Welded wiring

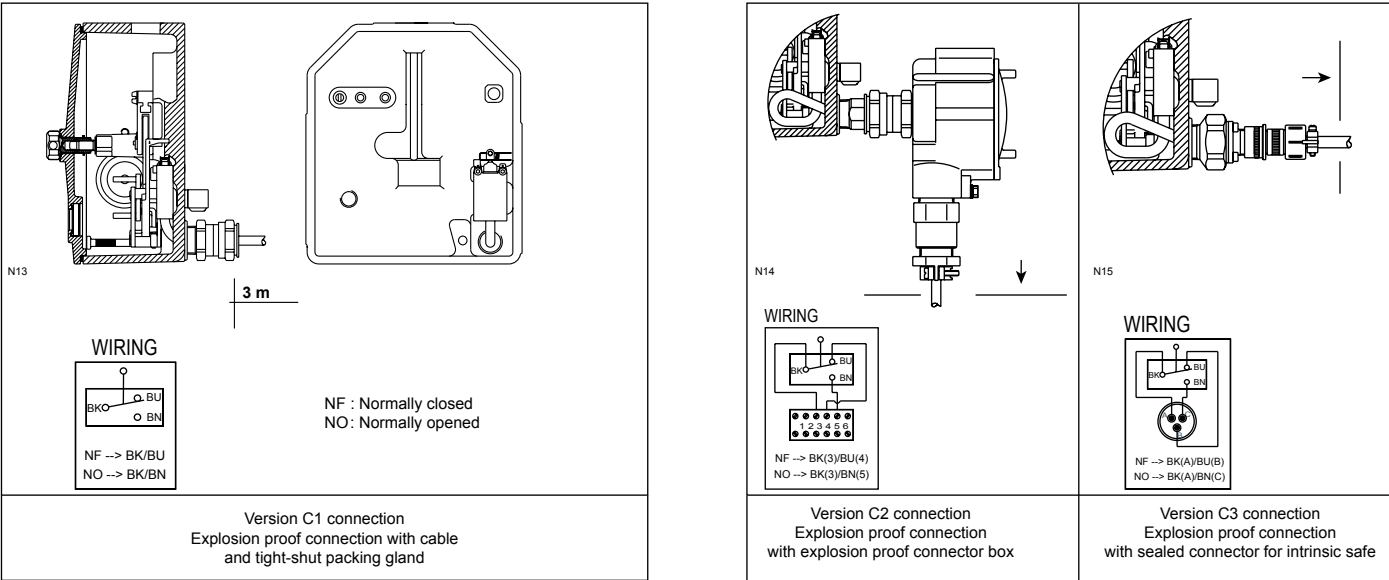


Figure 16. Different Versions of BM Connections

SAFETY MANOMETRIC BOX (BMS) DESCRIPTION AND SPARE PARTS

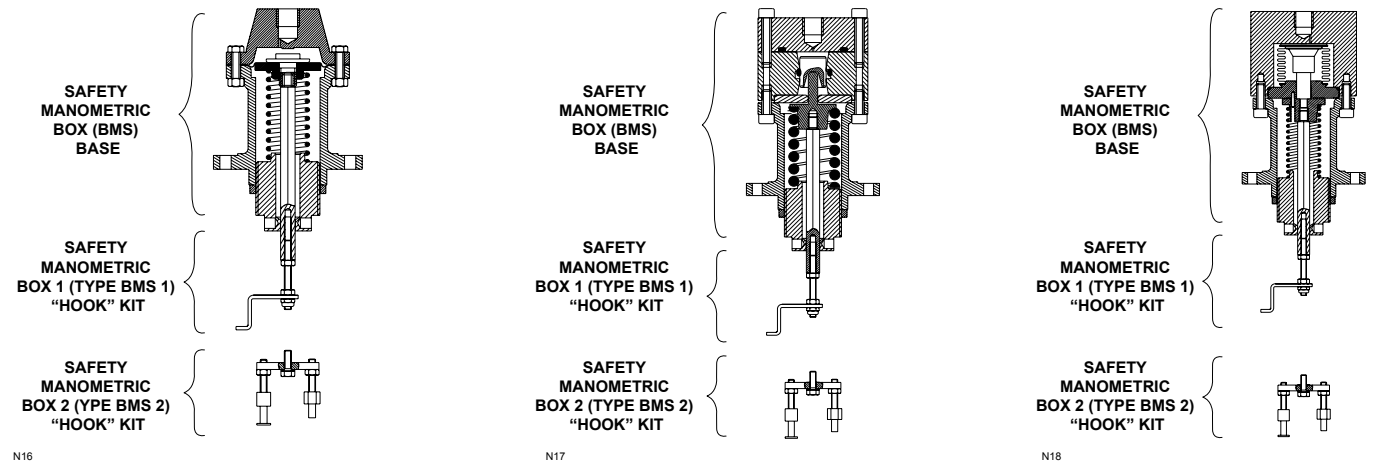


Figure 17. BMS with Diaphragm

Figure 18. BMS with Piston

Figure 19. BMS with Bellows

Table 10. Spare Parts

Description		Diaphragm (Max. and/or Min.)		Piston (Max. or Min.)		Bellows (Max. and/or Min.)	
		162	71	27	17	236	315
Type BMS 1	Complete box	181 071	181 072	180 999	180 998	181 073	181 074
	Base	181 105	181 106	181 107	181 108	181 109	181 110
	Hook kit	181 111					
Type BMS 2	Complete box	181 084	181 085	181 070	181 069	181 086	181 087
	Base	181 105	181 106	181 107	181 108	181 109	181 110
	Hook kit	181 112					
Spare Parts	Diaphragm	137 906	142 549	----	----	----	----
	Set of O-rings	----		197 352		----	

Items in bold are spare parts.

DESCRIPTION (BMS)

• Impulse line

The impulse line (IS) is connected to the network to be protected (normally downstream of the regulator).

• Impulse type

Depending on the pressure and precision required, different types of impulse may be used: Diaphragm, Piston or Bellows.

• Springs

To cover all pressure ranges, a set of springs of equal length and diameter, but of different wire diameter (2 to 6.5 mm), may be used.

• Detection

Table 11. Detection Configurations

		Actioner	Max. only	Min. only	Max. and Min.
One BMS	Type BMS 1	Releasing screw	Active	Neutral	Active
		Hook	Neutral	Active	Active
Two BMS	Type BMS 1	Releasing screw	Active	----	----
		Hook	Neutral		
	Type BMS 2	Push button	Active	Neutral	Active
		Hook	Neutral	Active	Active

OPERATION (BMS)

The pressure of the network to be protected pushes the diaphragm, piston or bellows. The force resulting from this opposes the force (adjustable) coming from the setpoint spring. When pressure varies, the detection rod moves and provokes releasing by max. or min. pressure.

CONNECTIONS (BMS)

On the mechanism box: 2 H M6x16 screws
(code 402018)

BM sealing: Flat O-ring and tight shut O-rings

On the manometric box: 1/4" NPT screw

Recommended tube: 8/10 mm

The sensing line must be connected downstream of the regulator.

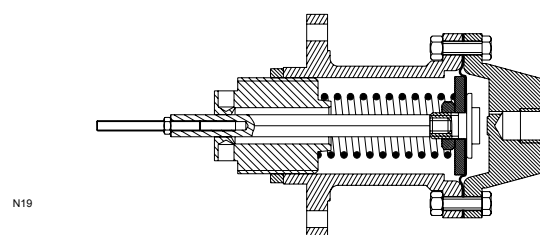


Figure 20. Type BMS 1 Max. Only

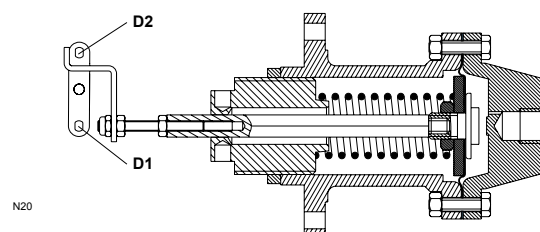


Figure 21. Type BMS 1 Min. Only

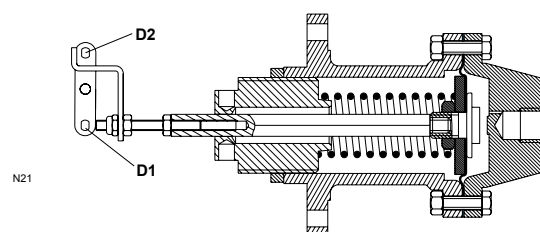


Figure 22. Type BMS 1 Max. - Min.

Table 12. Max. Pressure Releasing

Pressure	Type BMS 1	Type BMS 2
	Releasing screw	Push button
Normal	Without D1 pin contact	Without D2 pin contact
Increase	With D1 pin contact	With D2 pin contact
= Setpoint	Rotation of releasing stem and 1st stage trigger	

Table 13. Min Pressure Releasing

Pressure	Type BMS 1	Type BMS 2
	Hook	Hook
Normal	Without D2 pin contact	Without D1 pin contact
Decrease	With D2 pin contact	With D1 pin contact
= Setpoint	Rotation of releasing stem and 1st stage trigger	

Type OS2

SPRING ADJUSTMENTS RANGES (BMS)

(See definitions on page 9)

Table 14. Max. Only Spring Adjustment Ranges

MAX. ONLY	BMS			SPRING		MAX. ONLY			INTERVALS
	Type	Size	PMS box (bar)	ø Wire (mm)	Code	Wdso setting, bar			Δ1
						Max. low point possible	Recommended range		Δ1 (bar)
							Max. low point	Max. high. point	
MAX. ONLY	Diaphragm	162	10	2.0	113 195	0.010	0.015	0.035	0.004
				2.5	113 196	0.025	0.040	0.080	0.005
				3.0	113 197	0.045	0.080	0.140	0.010
				3.5	113 198	0.070	0.070	0.240	0.014
				4.0	113 199	0.115	0.140	0.380	0.018
				5.0	113 201	0.140	0.300	0.750	0.050
				5.5	113 202	0.250	0.600	1.3	0.080
				6.5	114 139	0.450	1.2	2.3	0.170
		071	20	4.5	113 200	1.0	2.0	5.1	0.350
				5.5	113 202	2.1	4.0	11.0	0.700
				6.5	114 139	4.0	8.0	16.0	1.6
	Piston	027	100	5.5	113 202	16.0	16.0	22.0	3.0
				6.5	114 139	22.0	22.0	40.0	6.5
		017	100	5.5	113 202	40.0	40.0	55.0	7.0
				6.5	114 139	55.0	55.0	100.0	12.0
	Bellows	236	35	5.5	113 202	5.5	11.0	22.0	1.6
				6.5	114 139	8.3	16.0	35.0	2.5
		315	72	5.0	113 201	17.5	35.0	72.0	5.0

Table 15. Min. Only Spring Adjustment Ranges

MIN. ONLY	BMS			SPRING		MIN. ONLY			INTERVALS
	Type	Size	PMS box (bar)	ø Wire (mm)	Code	Wdsu setting, bar			Δ1
						Min. low point possible	Recommended range		Δ1 (bar)
							Min. low point	Min. high. point	
MIN. ONLY	Diaphragm	162	10	2.0	113 195	0.010	0.015	0.035	0.004
				2.5	113 196	0.025	0.040	0.080	0.005
				3.0	113 197	0.045	0.080	0.150	0.010
				3.5	113 198	0.070	0.070	0.240	0.014
				4.0	113 199	0.115	0.150	0.400	0.018
				5.0	113 201	0.140	0.300	0.650	0.050
				5.5	113 202	0.250	0.600	1.15	0.080
				6.5	114 139	0.450	1.1	2.0	0.170
		071	20	4.5	113 200	1.0	2.0	4.7	0.350
				5.5	113 202	2.1	4.0	9.5	0.700
				6.5	114 139	4.0	8.0	14.4	1.6
	Piston	027	100	5.5	113 202	16.0	16.0	19.0	3.0
				6.5	114 139	19.0	19.0	38.0	6.5
		017	100	5.5	113 202	38.0	38.0	50.0	7.0
				6.5	114 139	50.0	50.0	90.0	12.0
	Bellows	236	35	5.5	113 202	5.5	11.0	16.0	1.6
				6.5	114 139	8.3	16.0	28.0	2.5
		315	72	5.0	113 201	17.5	28.0	65.0	5.0

Table 16. Max. and Min. Spring Adjustment Ranges

MAX. AND MIN.	BMS			SPRING		MAX. and MIN.		INTERVALS Δ1 and Δ2	
	Type	Size	PMS box (bar)	ø Wire (mm)	Code	Wdsu setting (bar)			
						Min. low point possible	Max. high point	Δ1 (bar)	Δ2 (bar)
	Diaphragm	162	10	2.0	113 195	0.010	0.035	0.004	0.010
				2.5	113 196	0.025	0.080	0.005	0.025
				3.0	113 197	0.045	0.140	0.010	0.050
				3.5	113 198	0.070	0.240	0.014	0.060
				4.0	113 199	0.115	0.380	0.018	0.150
				5.0	113 201	0.140	0.750	0.050	0.350
				5.5	113 202	0.230	1.3	0.080	0.600
				6.5	114 139	0.450	2.3	0.170	1.1
		071	20	4.5	113 200	1.0	5.1	0.350	2.5
				5.5	113 202	2.1	11.0	0.700	5.5
	6.5			114 139	4.0	16.0	1.6	10.0	
	Piston	027	Not possible with only 1 BMS						
		017							
	Bellows	236	35	5.5	113 202	5.5	16.0	1.6	10.0
				6.5	114 139	8.3	28.0	2.5	20.0
		315	72	5.0	113 201	17.5	65.0	5.0	33.0

DEFINITIONS

Table 17. Definitions

PSD box	Maximum operating pressure for box
Pd	Nominal downstream regulator pressure
Pd max	Maximum downstream regulator pressure (normally closing regulator pressure)
Pd min	Minimum downstream regulator pressure (disturbance in function with flow and/or inlet pressure is to be considered)
Pdo	Maximum releasing pressure
Max. high point	High regulator pressure at maximum
Max. low point	Low regulator pressure at maximum remaining within the accuracy class
Max. low point possible	Low regulator pressure at furthest maximum point (precision is not guaranteed)
Pdu	Minimum releasing pressure
Min. high point	High minimum regulator pressure
Min. low point	Low regulator pressure at minimum remaining within the accuracy class
Min. low point possible	Low regulator pressure at furthest minimum point (precision is not guaranteed)
Wdso	Overpressure specific range obtained from slam shut valve
Wdsu	Underpressure specific range obtained from slam shut valve
$\Delta 1$	Minimum difference allowed between Pdo and Pd max. and/or between Pdu and Pd min.
$\Delta 2$	Maximum difference allowed between maximum and minimum releasing pressure

SELECTION GUIDE LINES: PRESSURE LIMITATIONS

Table 18. Pressure Limitations

Max. Only	Min. Only	Max. and Min.
Pdo \leq PMS box (BMS) Pdo \leq Max. high point Pdo \geq Max. low point Pdo \geq Pd max. + $\Delta 1$	Pd max. < PMS box (BMS) Pdu \leq Max. high point Pdu \geq Min. low point Pdu \geq Pd min. - $\Delta 1$	Pdo \leq PMS box (BMS) Pdo \leq Max. high point Pdo \geq Pd max. + $\Delta 1$ Pdu \geq Min. lowest point possible Pdu \leq Pd min. - $\Delta 1$ Pdu - Pdu \leq $\Delta 2$

Type OS2

Note

When the setpoint (max. or min.) falls between the lowest and lowest point possible, the precision may pass into a superior range (example AG 2.5 → AG 5). If the point value is too close to that of the Pd, the option RJGI tripping is recommended (consult factory). In the case of two safety manometric boxes (BMS) both boxes should have a PSD > to the highest Pdo.

SELECTION OF BMS AND SPRINGS

Choose the type of safety manometric box (BMS) according to: PMS, the type of releasing precision.

Choice of springs:

- **Max. or Min. only**
Take the spring with the highest point directly superior to the releasing pressure required.
- **Max. and Min.**
Take the spring with the highest maximum point superior to the maximum releasing pressure required or with the lowest point inferior to the minimum tripping pressure required.

Table 19. Choice of BMS and Springs

PSD	Diaphragm	Bellows	Piston
0 to 20			
20 to 72		(*)	
72 to 100			
AG 2.5			
AG 5			
Max. only			
Min. only			
Max. and Min.			

(*) Choice between piston (regular) and bellows (optional). Bellows are recommended if you require a small gap between releasing pressure, inlet pressure and exact precision. Pistons do not facilitate minimum and maximum releasing.

MATERIALS (BMS)

Table 20. BMS Material

	Diaphragm	Bellows	Piston
Spring case	Zinc-plated steel		Stainless steel
Spring box	Aluminum + Chromatisation		
Diaphragm	Nitrile mesh		
Piston			Stainless steel
Bellows		Stainless steel	
Spring		Zinc-plated steel	
Adjustment screw		Zinc-plated steel	



WARNING

AUTHORIZED PERSONNEL ONLY
Risk of injury

After rearming, remove the reset key from the stem. Do not put fingers in or near the reset mechanism area.

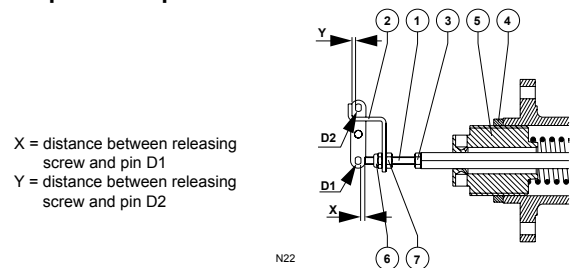
ADJUSTMENT (BMS)

Generally speaking, adjustments are carried out with the slam shut valve closed. Only the detection stage is reset. Control of the releasing value may be obtained by resetting the two stages.



CAUTION

Before any adjustment, check that the spring range installed corresponds to the required setpoint.



Type BMS 1 (Figures 17 to 19) Releasing by Max. Only

- Adjusting the releasing screw Free the min. hook (key 2). Then in the following conditions:
 - no pressure in the safety manometric box (BMS),
 - setpoint spring compressed so that the distance between the releasing screw and the pin D1 no longer increases, adjust the releasing screw (key 1) to $X = 1.5 \text{ mm}$ (detection stage set). Jam nut (key 3).
- Adjusting the max. only releasing pressure
Admit the releasing pressure to Pdo.
Screw the adjustment screw (key 5) until detection stage can be set.
Unscrew the adjustment screw (key 5) until detection stage release.
Check the pressure value at the releasing point (adjust if necessary).
Jam nut (key 4).

Releasing by Min. Only

- Adjusting the releasing screw and hook
Free the min. hook (key 2).
Then in the following conditions:
 - setpoint spring decompressed (adjustment screw (key 5) unscrewed),
 - pressure equal to the releasing pressure required for Pd min in the BMS,
 adjust the releasing screw (key 1) to $X = 2 \text{ mm}$ (detection stage set).
Jam nut (key 3).
Put the hook (key 2) into position and adjust $Y = 1.5 \text{ mm}$ with nuts (key 6) and (key 7).
Jam nuts (key 6) and (key 7).
- Adjusting the min. only releasing pressure
Continue admitting the required releasing pressure. Screw the adjustment screw (key 5) until detection stage release.
Check the pressure value at the releasing point (adjust if necessary). Jam lock nut (key 4).

Releasing by Max. and Min. (Diaphragms or Bellows Only)

• Adjusting the releasing screw

Free the min. hook (key 2).

Then in the following conditions:

- setpoint spring decompressed (adjustment screw (key 5) unscrewed),
- pressure equal to the max. releasing pressure required in the BMS,

adjust the releasing screw (key 1) to $X = 0$ mm (detection stage set).

Release manually.

Unscrew the releasing screw (key 1) 2 turns, which represents a distance of approximately 1.5 mm.

Jam nut (key 3).

• Max. adjustment

Same procedure as paragraph "Adjusting max. only releasing pressure"

• Min. adjustment

Admit an average pressure between max. and min., (for example: regulator set-point pressure).

Set the slam shut.

Admit a pressure equal to the min. Pd min. releasing pressure required.

Adjust the hook (key 2) by progressively moving nuts (key 6) and (key 7) until it releases.

Jam nuts (key 6) and (key 7).

Check the pressure value at the releasing point (adjust if necessary).

• Adjusting the max. only releasing pressure

Same procedure as paragraph "Adjusting the max. only releasing pressure".

Releasing by Min. Only

• Adjusting the min. only releasing pressure

Remove the max. push button (key 1) or screw it tight to neutralize it.

Jam nut (key 3).

Then in the following conditions:

- setpoint spring decompressed (adjustment screw (key 5) unscrewed),
- pressure equal to releasing pressure required in the BMS, adjust the min. hook (key 2) to $Y = 1.5$ mm (detection stage set).

Jam nut (key 6).

• Adjusting the min. only releasing pressure

Same procedure as paragraph "Adjusting max. only releasing pressure".

Releasing by Max. and Min.

• Adjusting the push button

The min. hook (key 2) is completely unscrewed.

Then in the following conditions:

- setpoint spring decompressed (adjustment screw (key 5) unscrewed),
- pressure equal to the max. releasing pressure required in the BMS.

adjust the push button (key 1) to $X = 0$ mm (detection stage set).

Release manually.

Unscrew the push button (key 1) 2 turns, which represents a distance of approximately 1.5 mm.

Jam nut (key 3).

• Adjusting the releasing pressure to max. and min.

Max. adjustment

Same procedure as paragraph "Adjusting the max. only releasing pressure".

Min. adjustment

Admit an average pressure between max. and min., (for example regulator set-point pressure).

Set the detection stage.

Admit a pressure equal to the min. releasing pressure required.

Screw the hook (key 2) progressively until detection stage release.

Jam nut (key 6).

Check the pressure value at the releasing point (adjust if necessary).

Type BMS 2 with 1 Max. Only Type BMS 1 Releasing by Max. Only

• Adjusting the max. push button

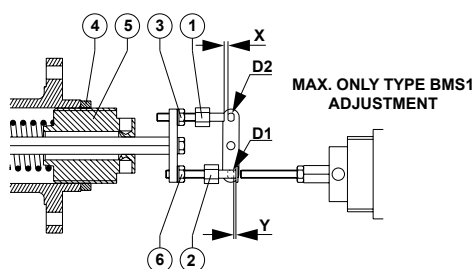
Remove the hook (key 2).

Then in the following conditions:

- no pressure in the BMS,
- setpoint spring compressed so that the distance between the push button (key 1) and the pin D2 no longer increases,

Adjust the push button (key 1) to $X = 1.5$ mm (detection stage set).

Jam nut (key 3).



Type OS2

MAINTENANCE (BMS)

• Control

The safety valve and pressure accessories are subject to normal wear and must be inspected periodically and replaced if necessary.

- Slam shut releasing
- External tight shut
- Impulse part (diaphragm, bellows or piston)

The frequency of inspections, checks and replacement depends on the severity of service conditions and must comply with the national or industrial codes, standards and regulations/recommendations applicable.

• Disassembly

- Unscrew the connector from the sensing line
- Remove the safety manometric box (BMS)
- Unscrew the blocking nut on the adjustment screw (manually)
- Unscrew the adjustment screw (resetting tool)
- Remove the hook or plate, depending on the type of Type BMS 1 or 2, from the detection rod (flat spanner 7)

- Remove the upper case
BMS 162 (flat spanner 11)
BMS 071 (flat spanner 8)
BMS piston 27/17 (key 5)
BMS bellows 236/315 (key 5)
- Disassemble the set plate/counter plate (flat spanner 17 and pliers) or
- Remove the bellows or piston and guide (manually)

• Assembly

- Proceed in reverse order to disassembly

• BMS torque values

- Upper spring case/manometric box
BMS 162: 8 N•m
BMS 071: 5 N•m
BMS piston 27/17: 6 N•m
BMS bellows 236/315: 6 N•m
- BMS 162 and 071 nut/diaphragm plate: 20 N•m

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